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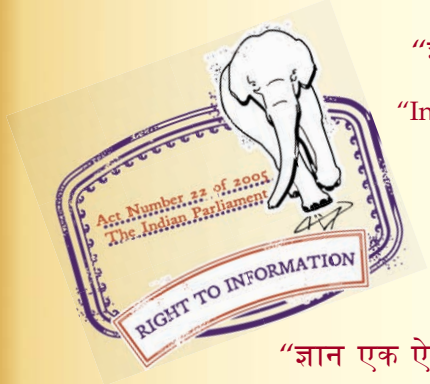
IS 2482 (1990): Light duty water suction hose of rubber
[PCD 13: Rubber and Rubber Products]



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IS 2482 : 1990
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Indian Standard

LIGHT DUTY WATER SUCTION HOSE OF RUBBER — SPECIFICATION

(Second Revision)

भारतीय मानक

हल्के कार्य के लिए रबड़ के जल-चूषक होज — विशिष्टि

(दूसरा पुनरीक्षण)

UDC 621·643·3·052·2 : 678·4

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

June 1990

Price Group 2

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards on 10 January 1990, after the draft finalized by the Rubber Products Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

The water suction hose covered under this standard are suitable for a minimum vacuum of 83 kPa (500 mm of mercury approximately).

This standard was first published in 1963 and revised in 1982. In the first revision requirement for accelerated ageing was modified and requirement for resistance to vacuum was added.

In this second revision new requirements for adhesion between components and bending test have been included. Requirement for filler thickness has been deleted. Further tolerance on small bore sizes has been reduced to $\pm$ 1·25.

This standard contains **5.2.3** and **5.2.4** which call for an agreement between the purchaser and the supplier.

In the preparation of this standard considerable assistance has been derived from ISO/DIS 4641 : 1987 'Rubber hoses for water suction—Specification' issued by the International Organization for Standardization.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

LIGHT DUTY WATER SUCTION HOSE OF RUBBER — SPECIFICATION

(Second Revision)

1 SCOPE

1.1 This standard prescribes the requirements and methods of test for light duty water suction hose of rubber, with woven fabric and wire reinforcement.

1.1.1 The hoses are suitable for a maximum vacuum of 83 kPa (approximately 500 mm of mercury).

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

IS No.	*Title*
IS 280 : 1978	Mild steel wire for general engineering purposes (*third revision*)
IS 443 : 1975	Methods of sampling and test for rubber hoses (*second revision*)
IS 3400 (Part 5) : 1986	Methods of test for vulcanized rubbers: Part 5 Adhesion of rubber to textile fabrics (*second revision*)
IS 7503 (Part 1) : 1988	Glossary of terms used in rubber industry: Part 1 Definitions of basic terms (*first revision*)
IS 7503 (Part 3) : 1988	Glossary of terms used in rubber industry: Part 3 Definitions relating to properties and testing (*first revision*)
IS 7503 (Part 5) : 1988	Glossary of terms used in rubber industry: Part 5 Definitions relating to products hoses (*first revision*)

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 7503 (Part 1) : 1988, IS 7503 (Part 3) : 1988, and IS 7503 (Part 5) : 1988 shall apply.

4 TYPES

4.1 The hose shall be of the following types:

Type 1 — Smooth bore; and

Type 2 — Rough bore (Semi-embedded)

5 REQUIREMENTS

5.1 Construction

5.1.1 The rubber hose may consist of the following:

Type 1

a) A rubber inner lining

b) A reinforcement of one or more layers of natural or synthetic fibre or combination thereof; applied by a suitable technique

c) Spiral wire

d) Abrasion resistant outer rubber cover — corrugated or smooth

Type 2

a) Semi-embedded internal wire

b) A rubber inner lining

c) A reinforcement of one or more layers of natural or synthetic fibre or combination thereof, applied by a suitable technique

d) Abrasion resistant outer rubber cover — corrugated or smooth

e) An external wire armouring applied in the corrugation

The lining and cover of hose shall be uniform in thickness, reasonably concentric and free from air blisters, porosity and splits. For Type 1 hose, the rubber lining shall be seamless in all hoses having an internal diameter of 50 mm or less. In case of larger hose, the lining may be built up from the calendered sheet.

5.1.2 The mild steel wire used shall be galvanized (*see* IS 280 : 1978).

5.2 Dimensions and Tolerances

5.2.1 The bore size when measured according to the method prescribed in **4.2.1.2** of IS 443 : 1975, shall be as given in Table 1.

5.2.2 *Thickness of Lining and Cover*

The thickness of the lining and cover shall not be less than that specified in Table 1.

Table 1 Bore Sizes with Tolerances and Thickness of Lining and Cover

(*Clauses* 5.2.1 *and* 5.2.2)

Sl No.	Nominal Bore Size	Tolerance on Bore Size	Minimum Thickness of	
			Lining	Cover
	mm	mm	mm	mm
(1)	(2)	(3)	(4)	(5)
i)	25·0	± 1·25	1·5	1·5
ii)	31·5		1·5	1·5
iii)	38·0	± 1·50	1·5	1·5
iv)	45·0		1·5	1·5
v)	50·0		2·0	1·5
vi)	56·0		2·0	1·5
vii)	63·0		2·0	1·5
viii)	75·0		2·5	1·5
ix)	100·0	± 2·0	2·5	1·5
x)	125·0		2·5	1·5
xi)	150·0		2·5	1·5

5.2.2.1 The thickness shall be measured according to the method prescribed in **4.2.2** of IS 443 : 1975.

5.2.3 *Length*

The length of the hose shall be as agreed to between the purchaser and the supplier.

5.2.3.1 Tolerance on hose length shall be ±1 percent.

5.2.4 *Hose Ends*

It is normal in this type of hose to have wire free end either of the same nominal bore as the hose or enlarged to take a full bore fitting. If enlarged ends are required, length and diameter of the ends shall be specified by the purchaser and the tolerance for the internal diameter of the hose shall apply to the enlarged ends.

5.3 Requirements of Physical Tests on Finished Hose

5.3.1 The requirements of physical tests on finished hose shall be as given in Table 2.

5.4 Performance Requirements for Finished Hoses

5.4.1 The performance requirements for the finished hose shall be as given in Table 3.

6 MARKING

6.1 The length of the hose shall be indelibly marked at each end with:

a) the nominal diameter of the hose;

b) hose nomenclature;

c) indication of the source of manufacture; and

d) month and year of manufacture, if specified by the purchaser.

7 SAMPLING AND CRITERIA FOR CONFORMITY

7.1 For the purpose of ascertaining the conformity of the hose in a consignment to this specification, the scale of sampling and the criteria for conformity shall be as prescribed in **3** of IS 443 : 1975.

Table 2 Physical Requirements

(*Clause* 5.3.1)

Sl No.	Characteristics	Requirement		Test Specimen	Methods of Test, Reference to Clause No. of IS 443 : 1975
		Lining	Cover		
(1)	(2)	(3)	(4)	(5)	(6)
i)	Tensile strength MPa, *Min*	5·5	5·5	Test specimen cut from the hose	5
ii)	Elongation at break, percent, *Min*	250	250	Test specimen cut from the hose	
iii)	Accelerated ageing Test:	−25	−25		
	a) Change in tensile strength, percent of the original value, *Max*			Test specimen cut from the hose	6 72 h at 70 ±1° C
	b) Change in elongation at break, percent of the original value, *Max*	+10 −30	+10 −30	Test specimen cut from the hose	

Table 3 Performance Requirements

(*Clause* 5.4.1)

Sl No.	Characteristics	Requirement	Test Specimen	Methods of Tests, Reference to
(1)	(2)	(3)	(4)	(5)
i)	Adhesion between hose components: a) Lining to reinforcement, b) Between reinforcements, c) Reinforcement to outer cover, by Machine method kPa/m, *Min*	1·5	Test piece cut from the hose	IS 3400 (Part 5) : 1986
ii)	Resistance to vacuum	— No separation of ply and lining — No collapse of cover — No visible sagging of lining or other imperfections	Full length of hose	14 of IS 443 : 1975 Vacuum of 83 kPa (500 mm mercury) for 10 minutes
iii)	Bending test	No kinking or flattening	Full length of hose	Curvature of 10 times the nominal bore

8 TIME LAPSE BETWEEN RECEIPT OF MATERIAL AND TESTING

8.1 For all test purposes, the minimum time between vulcanization and testing shall be 16 hours.

8.1.1 For product tests, whenever possible the time between vulcanization and testing should not exceed 4 months. In other cases, tests shall be made within 2 months from the date of receipt of the product by the customer.

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